To: Ex. 6 - Personal Privacy

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From: Jennifer Griffith
Sent: Thur 6/30/2016 5:02:28 PM
Subject: PFAS - Follow-up from June 23rd call - PFOA Sampling Protocols & Carbon Regeneration Issue
PFC MonitoringWell GW SamplingR1 1.pdf
PFC SW SamplingR1 1.pdf
PFC soil Sampling.pdf

To: NEWMOA PFAS Working Group

Three follow-up items from our June 23rd call last week:

1- **PFAS sampling protocols** – please send what your agency uses to me – attached are sampling protocols used by NYS DEC and below is one from NJ DEP

2- **Carbon regeneration** – there was concern on the call about where the condensate from carbon regeneration goes – in follow-up NYS DEC and EPA Region 2 provided e-mail correspondence with Calgon Carbon about their process (scroll down – included below the NJ sampling protocol – NYS DEC is a broader overview and Region 2 provides more detail on their process) – bottom line – carbon from PFAS sites is "reactivated" not "regenerated" and there is a difference – "reactivation" is a high temperature process (1,800 oF) – so there is no condensate to manage

3- We decided to hold **monthly calls on the second Thursday of the month from 10:30 to**

12:00 – I will send a recurring e-calendar invite in a few minutes so you can save the timeslot – our next call will be Thursday July 14th - Please send agenda topics to Bill Ottaway at NYS DEC…

A question – on the call, someone mentioned that there was a site where the homeowner put in a new well between sampling rounds and afterward, PFAS levels went up substantially due to the new well construction/plumbing – if you know about this, please contact me – it would be good to include in the August 3rd PFAS Sampling & Analysis webinar (if possible) – thanks!

I am working on putting together the webinar series – please send me names of anyone you think would be good to present on:

Toxicology

Fate & Transport (particularly including the air deposition source)

Treatment & Remediation

Lastly, if you do not want to receive these e-mails, please let me know – or if there are additional people in your agency/state that should be added, please let me know that too!

From NJ DEP: The following is taken from an approved site specific sampling plan.

SPECIAL SAMPLING CONCERNS

Because PFCs are also found in numerous everyday items, the following special precautions will be taken during all sampling activities:

• No use of Teflon®-containing materials (e.g., Teflon® tubing, bailers, tape, sample jar lid liners, plumbing paste)

• No Tyvek® clothing will be worn onsite

• Clothes treated with stain- or rain-resistant coatings will be avoided or go through several washings prior to use onsite

• No Post-It® notes will be brought onsite

• No fast food wrappers, disposable cups or microwave popcorn will be brought onsite

• After handing any of the above items, field personnel's will wash their hands thoroughly with soap and water prior to any sampling activities

• No use of chemical (blue) ice packs or foil will be allowed

•□□□□□□□□ Nitrile gloves will be worn during all sample collection activities

Groundwater Sampling

Field procedures are to follow NJDEP and U.S. Environmental Protection Agency guidance (NJDEP 2005; USEPA 2010). Unlike prior sampling events, no Teflon® disposable bladders or Teflon®-lined tubing will be used to minimize risk of PFC contamination from the sampling equipment. Easy to disassemble and clean low-flow bladder pumps with disposable polyethylene bladders will be employed for sample collection (e.g., Solinst 407 Integra). Dedicated or disposable quarter-inch polyethylene tubing will be used to avoid the need for decontamination of tubing. Pumps will be secured with non-Teflon® coated cord.

Calgon correspondence with NYS DEC:

Spent activated carbon containing PFOS/PFOA can be and has been reactivated for over 10 years by Calgon Carbon.
Reactivation (not the same as regeneration, which suggests an insitu process that does not remove all the adsorbate from the carbon, such as steam/hot gas or chemical regeneration) is a high temperature process (in the range of 1800 deg F) for thermal destruction of adsorbed organics. In pool reactivation or where many approved spent carbons are reactivated together, the activated carbon is then able to be reused in non potable/food grade applications, such as wastewater treatment or water remediation applications.

Prior to return of any spent carbon for reactivation by Calgon Carbon, from a given application (for example, POET systems from Town X that were used for removal of the same contaminants), the generator would complete a waste profile document and send us a representative spent carbon sample for testing to make sure we can safely and effectively reactivate the carbon. Upon successful completion of the testing, the application would then be issued a Carbon Acceptance Number (CAN) that is used for return of the spent carbon for reactivation (typically the spent carbon from POET units

under a CAN would be combined by the party contracted to perform the rebeds, and then sent for reactivation).

Calgon Carbon has pool reactivation facilities located in PA , OH and KY.

Calgon correspondence with EPA Region 2:

As follow up to our phone conversation last week, I wanted to provide you some further information on the thermal reactivation of spent carbon (specifically containing adsorbed PFC's) and the destruction of adsorbates (including PFC's) on activated carbon.

Spent activated carbon containing PFOS/PFOA and other PFC's can be and has been reactivated for over 10 years by Calgon Carbon Corporation.
Reactivation is a high temperature process (in the range of 1800 deg F) for thermal destruction of adsorbed chemicals, after which the reactivated carbon can be reused.

Calgon Carbon has worldwide spent carbon reactivation facilities. Some facilities handle industrial, non hazardous spent carbons.
Others will reactivate potable water (municipal) and food grade spent carbons via custom reactivation (segregated) in dedicated food grade furnaces and kilns (non hazardous spent carbons).
In 'pool ' reactivation (where many approved spent carbons are reactivated together and the PFC application spent carbons have been reactivated to date), the reactivated carbon is able to be reused in non potable/non food grade applications, such as wastewater treatment or water remediation applications. Calgon Carbon has such facilities that handle non RCRA hazardous and RCRA hazardous spent carbons, in PA and KY.

Prior to return of any spent carbon for reactivation by Calgon Carbon, from a given application, the generator must complete a waste profile document and submit to Calgon Carbon a representative spent carbon sample for testing. This testing is designed to make sure we can safely and effectively reactivate the carbon. Upon successful completion of the testing, the application/customer would then be issued a Carbon Acceptance Number (CAN) that is used for return of the spent carbon for reactivation. We periodically recertify approved spent carbons per our plant permits.

Carbon reactivation is a thermal treatment process in which adsorbed chemical constituents are removed from spent activated carbon to produce a recycled, reactivated product for beneficial reuse by Calgon Carbon Corporation's customers . The desorbed chemical constituents are thermally destroyed in the reactivation process. The spent activated carbon enters the furnace and passes through multiple hearths at increasingly hotter temperatures (max temperature of approx 1850 deg F). During this process any remaining water is vaporized, organic adsorbate (including PFC's) desorb and volatilize (for PFCs, including volatile

fluorides) into the furnace atmosphere. Desorbed organic compounds begin to combust within the furnace (for PFCs, HF is formed from the volatile fluorides). Some volatile organics may be charred or carbonized on the surface of the carbon as temperatures exceed 1000°F.

The furnace exhaust gases exit to an afterburner where any volatile organics that survive the furnace are combusted at temperatures in excess of 1600°F. Carbon monoxide can also be oxidized. The furnace is equipped with air pollution control equipment, which minimizes the release of air contaminants to the atmosphere. Furnace off-gases exiting the top of the furnace are treated in series by an integral afterburner, a dry scrubber/spray dryer unit (which removes acid gasses such as HF), and a baghouse-type dust collector (which removes particulate matter coming from the afterburner and spray dryer, as well as any dust from the furnace).

Any wastewater from the process, including contaminated stormwater, is treated through our wastewater treatment process and discharged in accordance with that plant's wastewater discharge permit.

Solid waste disposal of wastewater fines, baghouse dust , solids from the scrubber system, and /or slag and refractory from the furnace are handled in a variety of ways (i.e. cement kiln processing, RCRA permitted landfills). Where we reactivate hazardous and non hazardous spent carbons, the solid wastes are considered hazardous waste and are treated in a permitted system. At other reactivation facilities, the solid wastes are characterized and disposed accordingly.